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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/803,578	03/09/2001	Patrick Hwu	2026-4341	6841
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45733 7590 03/28/2006

LEYDIG, VOIT & MAYER, LTD.
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6780

EXAMINER

LI, QIAN JANICE

ART UNIT	PAPER NUMBER
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1633

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/803,578	Applicant(s) HWU ET AL.	
	Examiner Q. Janice Li, M.D.	Art Unit 1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,7,8,10,40,41,44-46,52-61,71-76 and 79-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,8,10,40,41,44-46,52-61,71-76 and 79-93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The response filed 12/19/2005 to the Office communication mailed 11/21/2005 is acknowledged. Upon further review of the prosecution history with the supervisory examiner Dave Nguyen, it has come to the attention of the examiner that similar claims (new claims 77-78) as objected in the 11/21/05 Office communication have been presented in the Applicant's response filed 3/23/05, but the matter was not addressed in the subsequent Office action mailed 5/27/05. Thus, these claims would be addressed in this Office action below as appropriate.

In the response filed 8/25/05, Claims 11, 47-51, 77, 78 have been cancelled. Claims 83-93 have been added. Claims 1, 40, 71, 72, 79-82 have been amended. Claims 1, 4, 7, 8, 10, 40, 41, 44-46, 52-61, 71-76, and 79-93 are pending and under consideration in the instant office action.

Unless otherwise indicated, previous rejections and related arguments in 8/25/05 Remarks that have been rendered moot in view of the new grounds of rejections will not be reiterated.

Information Disclosure Statement

The information disclosure statement filed 8/25/2005 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e). It has been placed in the application file, but the information referred to therein has not been considered.

Specification

The status of application 08/547263, cited on pg 17, line 5 of the specification, will need to be updated as necessary.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 55 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 55 recites the limitation "the ovarian tumor antigen". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 40, 41, 71, 72, 79-83, 92, 93 are newly rejected under 35 U.S.C. 102(b) as being anticipated by *Altenschmidt et al* (J Immunol 1997;159:5509-15).

Altenschmidt et al teach a method for preparing tumor reactive lymphocytes and a composition comprising: a) a population of T lymphocytes transduced with a recombinant genetic construct encoding a chimeric receptor comprising a single chain Fv that is reactive with a tumor antigen ErbB-2, and the modified T lymphocytes were enriched and activated by co-culture with b) retrovirus-producing packaging cells, which are allogenic to the T lymphocytes (4th paragraph, page 5510). Accordingly, *Altenschmidt et al* anticipate instant claims.

Claims 1, 7, 40, 41, 45, 52, 61, 71, 72, 76, 79-83, 87, 91-93 are newly rejected under 35 U.S.C. 102(b) as being anticipated by *Beecham et al* (J Immunother 2000; 23:332-43).

Beecham et al teach a method for preparing tumor reactive lymphocytes and a composition comprising a). a population of human T lymphocytes transduced with a recombinant genetic construct encoding a chimeric receptor comprising a single chain Fv that is reactive with a tumor antigen CEA, and the modified T lymphocytes were enriched and activated, and then added to b). tumor cell cultures, which are allogenic to the T lymphocytes (e.g. paragraph bridging pages 334-335). Accordingly, *Beecham et al* anticipate instant claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7, 8, 40, 41, 45, 46, 52, 56, 58, 61, 71, 72, 75, 76, 79-83, 86, 87, 90-93 are newly rejected under 35 U.S.C. 103(a) as being unpatentable over *Beecham et al* (J Immunother 2000; 23:332-43), in view of *Terheyden et al* (J Immunol 2000;164:6633-9) and *Munz et al* (J Immunol 1999;162:25-34).

Beecham et al teach an anti-tumor composition comprising a population of human T lymphocyte transduced with a recombinant genetic construct encoding a chimeric receptor comprising a single chain Fv that is reactive with a tumor antigen CEA (pages 336-7). *Beecham et al* teach the composition was made to address an art-known difficulty where tumor-infiltrating lymphocytes from tumor patients are difficult to obtain and often unresponsive to tumors (page 332), and the chimeric receptor lends the cultivated T cells specificity towards recognizing target tumor cells. *Beecham et al* differ from instant claims in that the T cells are activated in a special medium, *Beecham et al* do not teach the composition comprises allogenic monocytes such as dendritic cells or other antigen-presenting cells.

Terheyden et al supplemented the deficiency by establishing that it was well known in the art that co-culturing monocytic antigen-presenting cells with T lymphocytes has been widely used for T cell expansion, activation, or as a tool for functional investigation. *Terheyden et al* teach dendritic cells direct Th cell differentiation and expansion of tumor-reactive cytotoxic T lymphocytes. Co-culture of dendritic cells with T lymphocytes is a good model system to study cellular interaction during T cell priming and expansion (page 6633-4). *Terheyden et al* differ from instant claims in that they used autologous but not allogenic DCs.

Munz et al supplemented *Beecham et al* in view of *Terheyden et al* by illustrating that allogenic stimulus is more powerful in obtaining potent CTL cells compared to autologous stimulation. *Munz et al* co-cultured PBL with irradiated allogenic (T2 cells) or syngenic (autologous) monocytes (left column, page 26), and report the CTL obtained from allogenic or syngenic stimulation differ greatly both in peptide dependency and peptide specificity, and concluded with respect to allogenic stimulated T lymphocytes, "SUCH T CELLS MIGHT INDEED BE USEFUL FOR TUMOR IMMUNOTHERAPY" (e.g. abstract).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the preparation process as taught by *Beecham et al*, with that of *Terheyden et al* and *Munz et al* by co-culturing allogenic APCs with tumor reactive T cells with a reasonable expectation of success. The ordinary skilled artisan would have been motivated to modify the claimed invention because the co-culture system was a widely used model in the art and the allogenic APCs enhance T

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cell anti-tumor potency. Thus, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Claims 4, 10, 44, 53-55, 57, 59, 60, 73, 74, 84, 85, 88, 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beecham et al* (J Immunother 2000; 23:332-43), in view of *Terheyden et al* (J Immunol 2000;164:6633-9) and *Munz et al* (J Immunol 1999;162:25-34) as applied to Claims 1, 7, 8, 40, 41, 45, 46, 52, 56, 58, 61, 71, 72, 75, 76, 79-83, 86, 87, 90-93 above, and further in view of *Nishimura et al* (US Patent 5,830,755).

The combined teachings of *Beecham et al*, in view of *Terheyden et al*, and *Munz et al* were detailed *supra*, which do not teach the chimeric TCR is specific for an ovarian tumor antigen, preferably Mov-γ.

Nishimura et al supplemented the deficiency by exemplifying that the chimeric receptor and transduced T cells recited in the claims was well known in the art (e.g. example 4).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the Mov-γ chimeric receptor as taught by *Nishimura et al* in the method as taught by *Beecham et al*, in view of *Terheyden et al* and *Munz et al* with a reasonable expectation of success. The ordinary skilled artisan would have been motivated to modify the claimed invention because the specific chimeric receptor could be used when treating ovarian cancer is necessary. Thus, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Q. Janice Li** whose telephone number is 571-272-0730. The examiner can normally be reached on 9:30 am - 7 p.m., Monday through Friday, except every other Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Dave T. Nguyen** can be reached on 571-272-0731. The fax numbers for the organization where this application or proceeding is assigned are **571-273-8300**.

Any inquiry of formal matters can be directed to the patent analyst, **William Phillips**, whose telephone number is (571) 272-0548.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

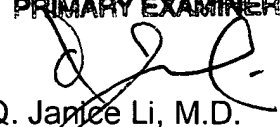
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**Q. JANICE LI, M.D.
PRIMARY EXAMINER**



Q. Janice Li, M.D.
Primary Examiner
Art Unit 1633

QJL

March 17, 2006